

3-1 Introduction to Consumer Credit

Advanced Financial Algebra

Example 1 - saving for a purchase

- Heather wants to purchase an electric guitar. The price of the guitar with tax is \$2,240. If she can save \$90 per month, how long will it take her to save up for the guitar?
- SOLUTION:
- $2240/90 \approx 24.9$
- It will take about 25 months to save for the guitar.

Example 2 - installment plan instead?

- Heather (from Example 1) speaks to the salesperson at the music store, who suggests that she buy the guitar on an installment plan. It requires a 15% down payment. The remainder, plus a finance charge (interest), is paid back on a monthly basis for the next 2 years. The monthly payment is \$88.75. What is the finance charge?
- SOLUTION: _____
- 15% down payment = $(.15)(2240) = \$336$ down payment
- She would still owe $\$2240 - \$336 = \$1,904$
- She pays \$88.75 for 24 months = $(24)(88.75) = \$2,130$
- Paid - owed = interest
- $2130 - 1904 = \underline{\$226.00}$ is how much Heather would have to pay in interest

Example 3 - deferred payment

- Carpet King is trying to increase sales, and it has a new promotion. All purchases can be paid on the installment plan with no interest, as long as the total is paid in full within 6 months. There is a \$20 minimum monthly payment required. If the Schuster family buys carpeting for \$2,134 and makes only the minimum payment for 5 months, how much will they have to pay in the 6th month?
- SOLUTION:
- Pay the minimum payment for 5 months = $(\$20)(5) = \100
- They will still owe: $\$2,134 - \$100 = \underline{\$2,034 \text{ still owed}}$

Example 4 - continuous compounding

- Cecilia purchased \$4,322 worth of home appliances on Appliance Depot's deferred payment plan. The plan allows the customer to make no down payment, and there is no payment at all for 3 months. If the entire \$4,322 is paid in full before the 3 months is up, there is no interest. (This is a store's way to persuade customers to make purchases.) If it is not paid in full within the 3 months, there is a finance charge with an APR of 21.6% applied each month going back to the first month. If Cecilia makes the full payment a week after the 3 months expired, what is the finance charge?

- SOLUTION:

- $A = P\left(1 + \frac{r}{n}\right)^{nt} = 4322\left(1 + \frac{.216}{12}\right)^{(12 * .25)}$ NOTE: 3 months = .25 years

- $\approx \$4,559.61$ paid

- $- \underline{\$4,322}$ original price

- Cecilia will pay \$237.61 of interest for being 1 week late after 3 month cutoff.

Credit Scores

- Your credit score is determined by your past financial responsibilities and behavior.
- Your score affects the interest rate you are charged on loans.
- A higher FICO (Fair Isaac Corporation)/credit score usually means you will be charged a lower interest rate because the lender “trusts” you to pay back the loan.
- We will talk more about ways to affect your credit score next semester.

Example 6 - credit score

- Mike has a credit rating of 720. Tyler has a credit rating of 560. Mike and Tyler apply for identical loans from Park Bank. Mike is approved for a loan at 3.2% interest, and Tyler is approved for a loan that charged 3 percentage points higher because of his inferior credit rating. What interest rate is Tyler charged?
- SOLUTION:
- Tyler has to pay a higher interest rate since his credit is worse.
- Tyler's interest rate = $3.2\% + 3\% = \underline{6.2\% \text{ interest for the same loan.}}$

Assignment: pg 154 # 2, 3, 5, 8, 10, 15

- #2 Monique buys a \$4,700 air conditioning system using an installment plan that requires 15% down. How much is the down payment?
- #3 Craig wants to purchase a boat that costs \$1,420. He signs an installment agreement requiring a 20% down payment. He currently has \$250 saved. Does he have enough for the down payment?
- #5 Linda bought a washer and dryer for y dollars on an installment agreement with 15% down payment and monthly payments of x dollars for 1 year.
 - a) Express her down payment algebraically (using y).
 - b) How many monthly payments must Linda make?
 - c) Express the total amount of the monthly payments algebraically (using x).
 - d) If Linda represents her payments as an arithmetic sequence, tell what the first term (a_1) and the common ratio (d) would be. $a_1 = ?$ $d = ?$
 - e) Express the total amount Linda pays for the appliances algebraically (using x and y).
 - f) Express the finance charge algebraically

Assignment: pg 154 # 2, 3, 5, 8, 10, 15 con't

- #8 Mazzeo's Appliance Store requires a down payment of $\frac{1}{3}$ on all installment purchases. Norton's Depot requires a 30% down payment on installment purchases. Which store's down payment rate is lower?
- #10 Adam bought a \$1,670 custom video game/sound system on a special no-interest plan. He made a \$100 down payment and agreed to pay the entire purchase off in $1\frac{1}{2}$ years. The minimum monthly payment is \$10. If he makes the minimum monthly payment up until the last payment, what will be the amount of his last payment?

Assignment: pg 154 # 2, 3, 5, 8, 10, 15 con't

- #15

Some stores offer a *rent-to-own* plan. The customer makes a down payment, receives the merchandise at time of purchase, and makes monthly payments. The sum of the monthly payments is lower than the cost of the item. When the last payment is made, customers make a choice. They can purchase the item and apply their payments towards the cost. They can return the item, which means they rented it for a certain period of months.

a. Sharon bought a \$2,100 high-definition television set (HDTV) on a six-month rent-to-own plan. The down payment was 10%. What was the dollar value of the down payment?

b. Her monthly payments were \$75 per month. If she decides not to buy the HDTV after the six months, what was her cost to rent it?